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Respiratory Distress Observation Scale Implementation for Comfort Care Patients in the Acute Care Setting

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ABSTRACT

One of the most common symptoms at the end of life is respiratory distress. Respiratory distress or dyspnea is a subjective symptom and therefore challenging to assess, especially when the patient is unable to communicate. Controlling symptoms depend on the knowledge and assessment skills of the clinicians and their willingness to administer the necessary pharmacological intervention. Assessment and treatment of this symptom presented a gap in the quality of care for the patients in the hospital of the author. An exhaustive literature review established that this existed also in other clinical settings and led to the Respiratory Distress Observation Scale (RDOS), a validated tool specifically designed for the non-verbal dying patient in respiratory distress, which subsequently was introduced during this quality improvement project to create a common and objective framework for assessment and intervention. The project is theoretically supported by Kolcaba's comfort theory that looks at the comfort of the patient at any stage of their health or dying process and the comfort of the clinician working with the patient. Methodologically, during the project a chart review measured the presence of the symptom, the medication ordered by the provider and the medication given by the nurse for the determined patient population before and after the implementation; a survey attempting to obtain some insight into the knowledge base and their comfort level with and their attitudes toward working with dying patients was given to the nurses, also pre- and post-implementation. Statistical analysis performed utilizing SPSS statistical software determined that there is a significant difference between the pre/post chart reviews for the chosen variables; the post-implementation survey could not be used due to the lack of respondents, and an analysis of the pre-survey was

interesting but allowed obviously no conclusion about possible changes in attitude and/or knowledge.

Marianne Wachalovsky
May, 2020

RESPIRATORY DISTRESS OBSERVATION SCALE
IMPLEMENTATION FOR COMFORT CARE PATIENTS IN THE
ACUTE CARE SETTING

by
Marianne Wachalovsky

A project
submitted in partial
fulfillment of the requirements for the degree of
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APPROVED

For the California State University, Northern Consortium
Doctor of Nursing Practice:

We, the undersigned, certify that the project of the following student meets the required standards of scholarship, format, and style of the university and the student's graduate degree program for the awarding of the Doctor of Nursing Practice degree.

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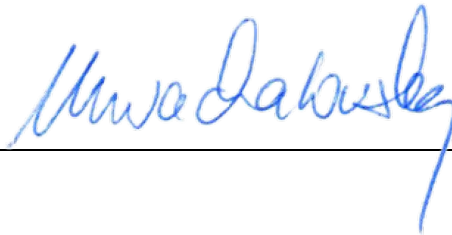
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CHAPTER 1: INTRODUCTION

The American Association of Colleges of Nursing recommended competencies and guidelines about the end-of-life care education since 1998, to this day nurses surveyed still feel anxiety and a lack of confidence providing care to the dying (Lippe & Becker, 2015). Most of the hospitals in the US do not have guidelines and tools to assess and control symptoms in dying patients (Freeman, 2013). Nurses usually rely on learned and experiential practice when assessing and treating patients (Birkholz & Haney, 2018). The knowledge, attitude, and skill the nurse brings to the bedside can alleviate suffering for the patient at the end of life (Jeffers, 2014). Continued education about the end of life and the utilization of appropriate assessment tools to control symptoms is essential to prevent and relieve suffering of the dying patient.

Background

Even with this knowledge, dyspnea or respiratory distress is a common but overlooked symptom at the end of life, escalating across diagnoses in the last week of life (Bausewein et al., 2010) (Campbell et al., 2018). As most patients at the end of life are unable to self-report their distress, they depend on the skill of the nurse to assess the symptom and treat it appropriately (Zhuang, Yang, Neo, & Cheung, 2018). Due to the complex etiology of respiratory distress, the development of a tool that captures the multiple dimensions is challenging (Wysham et al., 2015). There is one validated and reliable tool, the Respiratory Distress Observation Scale (RDOS), that assists with the task of assessing respiratory distress in the non-verbal dying patient (Campbell et al., 2015).

Purpose

This project is a quality improvement project in which the aim was to implement an assessment tool to assess respiratory distress in a dying patient to be able to address this symptom by providing pharmacological interventions to ameliorate suffering. The hospital did not have an assessment tools for respiratory distress for dying patients and with it the appropriate pharmacological interventions.

Most of the assessments rely on the knowledge and expertise of the nurse regarding a specific symptom. An assessment tool objectively and accurately provides information about a symptom giving the nurse the possibility to act toward the management of that symptom. Dying patients are non-verbal and unable to express distress. Respiratory distress, a frequent symptom at the end of life, can be ameliorated with pharmacological interventions and decrease suffering for the patient as well for the family and the clinician. Nurses feel uncomfortable medicating a patient when they believe that their assessment is flawed, or the intervention provided might cause the premature death of the patient in their perception. An assessment tool provides the objectification of a symptom removing the perceived doubt of the nurse guiding the care of the dying patient.

The RDOS, a validated and reliable assessment tool for respiratory distress in the non-verbal dying patient, was the implemented assessment tool.

Dyspnea/Respiratory Distress

Dyspnea, a complex symptom, occurs in many advanced illnesses. Dyspnea derives from interactions among multiple physiological, psychological, social, and environmental factors, and as a perceptual symptom, assessment depends mainly on self-reporting, and consequently it is difficult to quantify (Parshall et al., 2011). Strang, Ekberg-Jansson, and Henoch (2014) showed that as dyspnea increases in

severity and frequency with the disease progression anxiety is a dominant feature and acts as a reinforcing catalyst in the spiral lockstep between disease and dyspnea.

Dyspnea is prevalent among seventy percent of patients nearing the end of life (Campbell, Kiernan, Strandmark & Yarandi, 2018). Campbell (2015) describes dyspnea akin to suffocation and one of the worst symptoms experienced by a dying patient. Respiratory distress is the clinical sign of dyspnea, it is observable by the clinician and can be objectively assessed with the respiratory distress observation scale (RDOS).

Studies done by Rowbottom et al. (2017) and Campbell, Kiernan, Strandmark & Yarandi (2018) show that the presence of increased dyspnea severity correlates with the increased decline and that respiratory distress escalates at the end of life independent of the state of consciousness of the patient. Regular assessment of symptoms at the end of life is paramount in relieving suffering (Baker, De Santo-Madeya & Banzett, 2017).

Many patients nearing end of life are unable to provide dyspnea self-report due to their cognitive impairment (Campbell et al., 2018). These patients depend solely on the observed symptom by the clinician to activate symptomatic intervention (Campbell et al., 2018). Management of dyspnea is focused on relieving the symptom and distress it causes through assessing and implementing interventions. Although oxygen is the main stay for treating dyspnea research has shown that regular use of oxygen at the end of life did not prove beneficial and this practice is not advised (Star & Boland, 2018).

Treatment for Respiratory Distress

Respiratory distress is treated with opioids or benzodiazepines. Opioids, in low dosages, provide good symptom management for dyspnea. Parshall et al. (2012) conclude that ‘opioids, both endogenous and exogenous, may relieve dyspnea by altering central processing of efferent and afferent sensory information’ (p. 436). A national prospective study by Ekström, Bornefalk-Hermansson, Abernethy and Currow (2014) about the use of opioids and benzodiazepines in COPD patients demonstrated that there was no association with increased mortality regardless if the patient was opioid naïve or not.

Opioids balance the perception of dyspnea by decreasing the respiratory drive and its associated corollary discharge by altering the central perception and decreasing anxiety (Mahler & O’Donnell, 2015). Star and Boland (2018) describe the proposed mechanism of opioids on dyspnea through the μ -opioid receptor activity. Opioids bind to the peripheral opioid receptors within the bronchioles and alveolar walls additionally to their central processing modulation of dyspnea which is similar to the one for pain (Star & Boland, 2018). Opioids in low dosages (≤ 30 mg of oral morphine equivalent/day) used for respiratory distress even in severe COPD patients did not cause respiratory depression (Star & Boland, 2018). Opioids should always be titrated to lowest best effective dose for that specific patient.

RDOS

The prevalence of dyspnea or respiratory distress at the end of life makes the Respiratory Distress Observation Scale (RDOS) a vital assessment tool for nurses. This tool assists nurses to objectively control the symptom by implementing the appropriate pharmacological intervention as a function of their assessment. The result is a patient who is not suffering and comfortable. The

RDOS also increases the confidence of the nurse in being capable of delivering competent care. The nurses' lack of knowledge and the unavailability of a tool to objectify respiratory distress at the end of life causes decreased compliance with pharmacological interventions to relieve respiratory distress, simultaneously increasing distress in the nurse. In a study about treating dyspnea in patients suffering from advanced illness with opioids, investigators found that clinicians did not administer the medication due to the misconception that opioids could hasten death (Gardiner et al., 2012). The pharmacological interventions for dyspnea are opioids and barbiturates and these unfounded beliefs and misconceptions continue to impact the care and symptom management of the dying patient in the acute care setting (Freeman, 2013).

Theoretical Framework

Kolcaba's Comfort Theory was used as a theoretical framework. Kolcaba's midrange comfort theory addresses the comfort of the patient, the family, as well as the comfort of the clinician. The nurse cares for the patient to ease the patient's distress by providing comfort for their physical, mental and spiritual realm through interventions to control their symptoms and helping the patient reach transcendence. The comfort for the clinician is reached by having the appropriate knowledge to care for a certain population type, the right assessment tools to deliver the care the patient deserves and needs, and the support from the institution to deliver that care.

Problem Statement

The nurses working at the hospital lack the knowledge to assess symptoms of respiratory distress in the dying patient. Furthermore, they have no assessment tools available to objectively assess respiratory distress as a symptom in the dying patient and easing the patient's distress. Not having an objective assessment

increases their anxiety of mismanaging the patient, exacerbated by the fear of causing the premature death of the patient should they implement the ordered pharmacological intervention. As a result, the patient continues to suffer respiratory distress, which is a manageable symptom.

Relevance

The RDOS assessment tool as an objective assessment tool eliminates the subjectivity of the assessment provided by the nurse. This therefore increases the comfort level of the nurse to deliver the appropriate ordered pharmacological interventions and thereby decreasing the suffering of the dying patient by easing the respiratory distress.

This quality improvement project started with a pre tool implementation survey of the nurses and a chart review of comfort care patient seen by the palliative care team. The information gathered was to assess the nurses' knowledge and comfort level of giving opioids prior to the education and implementation of the tool. The chart reviews were done to gather information of the current medication prescribing practice was of the providers for the comfort care patients prior to the tool implementation.

The education about the RDOS as an assessment tool took place over a period of two weeks during the huddle of each shift and then was supported by the lead nurses of each unit and the palliative care providers for nurses that needed further assistance after that period of time. The tool was utilized for every comfort care patient that the palliative care team interacted with for the next two months.

After that period of time a post implementation survey was given to the nurses to learn how the tool impacted their knowledge and if their comfort level increased in giving opioids now that they had an assessment tool that objectified their assessment. A chart review was also conducted to study the impact the

RDOS had on prescribing the appropriate pharmacological intervention by the provider for the patient as well as the nurses implementation of the appropriate intervention after their assessment utilizing the tool. Further information was gathered about the impact of the pharmacological intervention in addressing the symptom and decreasing the respiratory distress and suffering of the dying patient. SPSS was utilized to analyze the data gathered. The data gathered from the nursing survey was analyzed with the Kruskal-Wallis ANOVA non-parametric test with a confidence interval of 95%. The data gathered from the chart review was analyzed utilizing the Mann-Whitney non-parametric test with a confidence interval of 95%.

Summary

The project was a quality improvement project that implemented the RDOS as an objective assessment tool to assess respiratory distress in dying patients. It studied the impact this tool had on medication prescribing by provider, medication delivery by the nurse when symptom present, as well as increasing the knowledge of caring for the dying patient in respiratory distress and delivery opioids as the first line of treatment by the nurse. Data was gathered through a survey with the nurses of the ICU and medical-surgical floor. Further data was gathered through a pre tool and post tool implementation chart review of the comfort care patients followed by the palliative care service.

CHAPTER 2: LITERATURE REVIEW

The aim of this quality improvement project was to implement an assessment tool to assess respiratory distress in a dying patient. The hospital did not have an assessment tools for respiratory distress for dying patients and with it the appropriate pharmacological interventions, making it difficult to keep the distressed dying patient comfortable. An assessment tool objectively and accurately provides information about a symptom giving the nurse the possibility to act toward the management of that symptom.

The literature review presents the importance of symptom management both in palliative care and end of life. Star and Boland (2018) cite the latest evidence-based research about pharmacological interventions commonly utilized for symptom management in palliative care. The complexity of treating respiratory distress is compounded by knowledge deficits of the clinicians: the fear that opioids may cause respiratory distress, knowledge deficit about the role opioids play in controlling respiratory distress, the unfounded believe that opioids are the cause of the premature death of the patient, and similar personal attitudes (Freeman, 2013)(Star & Boland, 2018). These cause unnecessary suffering for the patient and are the overall barrier to symptom management at the end of life (Freeman, 2013).

Dyspnea is a common symptom experienced by most of the patients with terminal disease and at the end of life. Rowbottom, Chan, Zhang, McDonald, Barnes, Tsao, Zaki and Chow (2017) showed that the presence of increased dyspnea severity correlates with increased decline of the patient. Birkholz and Taney (2018) describe the subjectivity of dyspnea as the information that can be elicited from the patient as a self-reported symptom. Although dyspnea has been

significantly researched over the years, which may be due to the complex etiology both physiologically and psychologically of the symptom, only one validated assessment tool for the non-verbal dying patient in respiratory distress exists, the RDOS (Wysham et al., 2015)(Campbell et al., 2015).

Zhuang, Yang, Neo, and Cheung (2018) in their study of the validity, reliability, and diagnostic accuracy of the RDOS for assessment of dyspnea in adult palliative care patients stressed that the patients unable to self-report their distress depended on the accuracy of the nurse as a surrogate to the patient to appropriately assess the symptom. They further state that assessment tools are needed to guide the accuracy of interpretation of symptoms.

Baker, DeSantos-Madeya and Banzett (2017) conclude that routine assessment of symptoms at the end of life is paramount in relieving suffering. Freeman (2013) stresses that relieving symptoms for an actively dying patient and eliminating suffering should be the focus and the intent when caring for this population.

Dyspnea

Star and Boland (2018) in their updates in palliative care – recent advances in the pharmacological management of symptoms, explain that palliative care patients have many different symptoms and review the recent palliative-care-based evidence changes and recommendations in practice. Symptom management, they write, starts with a thorough assessment of the patient's symptom. If appropriate the underlying cause of the symptom should be addressed and properly intervened. Communication with the patient and the family is essential in management of symptoms. Dyspnea is one of the most common symptoms that occurs in many advanced illnesses. Star and Boland further explain that in these patient's dyspnea occurs due to an imbalance between their perceived need to breath and their

physiological capacity to do so. Although oxygen improves in the early stages of dyspnea the perception and the breathing of the patient, in the last days of life regardless of the characteristic of the symptom, it has not proven to be beneficial and it is not recommended to use. Instead they suggest using systematic opioids to palliate dyspnea and benzodiazepines if anxiety is a factor of dyspnea.

Rowbottom, Chan, Zhang, McDonald, Barnes, Tsao, Zaki and Chow (2017) researched the relationship between dyspnea and other symptoms found with advanced illness that are measured in the Edmonton Symptom Assessment System (ESAS), a tool that is utilized for palliative patients to assess their symptoms. Their quantitative study of 1392 cancer patients that they recruited during 1999 to 2002 and then again from 2006 to 2009 showed that there was a significant correlation between all ESAS items except pain with dyspnea ($p < 0.0001$). This study showed that dyspnea is present at the end of life; and even if a patient is unable to report having one or more symptoms in the ESAS (except pain) they are also suffering of dyspnea. It also showed that the presence of increased dyspnea severity correlates with increased decline.

Campbell, Kiernan, Strandmark and Yarandi (2018) in their longitudinal study of 91 hospice patients recruited from a local hospice agency demonstrated that respiratory distress escalates in the last days of life. The objective of the study was to determine the trajectory of self-reported dyspnea and respiratory distress observed among patients who were approaching death. The study consisted of consecutive measures of dyspnea from the time of hospice enrollment to the patients' death. There are no or very few longitudinal studies of patients that are unable to self-report dyspnea in the literature and this study helped to understand that ultimately respiratory distress escalates at the end of life independent of the state of consciousness of the patient.

Assessment

As a symptom, dyspnea should be assessed regularly. There are multiple scales to assess dyspnea in verbal patients but only one that assess dyspnea in non-verbal patients. The assessment tools for verbal patients rely on multi-item questions which are posed to the patient making them inappropriate for the non-verbal dying patient (Wysham et al., 2015).

Campbell et al., (2010) in their article ‘A Respiratory Distress Observation Scale for Patients Unable To Self-Report Dyspnea’ reported about their findings for 89 consecutive patients whose dyspnea was scored through multiple self-reporting tests and biometric data, including the RDOS tool. During this observational study they determined that the RDOS correlates significantly with all possible self-reporting test and/or biometric data like neurologic diagnosis, consciousness, cognitive state, nearness to death and patient demographics. During this observational study, the RDOS was expanded by one more variable, namely paradoxical breathing pattern. This study shows that the RDOS has significant interrater reliability and would be the appropriate tool to use for non-verbal dying patients.

Campbell and Templin (2015) in their study to establish the cut-point for the RDOS found that a score of ≥ 3 showed that the patient needed palliation for their respiratory distress. RDOS is a tool with acceptable reliability and validity psychometrics that was developed in 2010 but did not have a cut-point when palliation should be implemented for a patient in respiratory distress.

Campbell et al. (2015) studied 136 inpatients in a tertiary hospital in the Midwest. A receiver operating characteristic (AUC) curve analysis was carried out among cognitive intact patients that were categorized into four self-reported levels: none, mild, moderate, and severe. These patients acted as surrogates for

individuals that are unable to self-report and are actively dying. The cognitive status of the individuals was measured using the Cognitive State Categorization Tool (CSCT) and patients that had a score of <12 CSCT were excluded as previously studied patients with levels <12 were unable to quantify their respiratory distress.

An AUC of 0.795 for the none/mild versus moderate/severe cut points means a 79.5% likelihood that a randomly selected person in the study population with moderate to severe dyspnea will receive an RDOS score higher than a randomly selected person with no to mild dyspnea. The RDOS score of ≥ 3 had sensitivity of 68% and specificity of 77% of distinguishing between perceived respiratory distress that was labeled moderate to severe versus none or mild.

Three years later Zhuang et al. (2018) performed a validity, reliability, and diagnostic accuracy of the Respiratory Distress Observation Scale (RDOS). The goal was to measure the interrater reliability and convergent and divergent validity of the tool. They calculated the Area under Receiver Operating Characteristic Curve Analysis (AUC) to examine the discriminant properties of RDOS using dyspnea self-report as a benchmark. Their study showed that RDOS showed promise and clinical utility as an observational dyspnea assessment tool. RDOS ≥ 4 predicted patients with moderate to severe dyspnea with a sensitivity of 76.6% and a specificity of 86.2%.

Implementing an assessment tool for non-responsive patients' hospital wide requires the consideration of how time consuming the application of the tool will be for the bedside nurse. Birkholz & Haney (2018) compared nurses' experiential practice in the assessment and management of dyspnea with the RDOS. The target were nurses ($n=39$) that work with end of life patients either in the hospital ($n_1=7$) or in hospice ($n_2=32$) where the institutions did not have standardized tools for the

assessment of dyspnea in patients unable to self-report. The results showed that the implementation of the RDOS even enhanced the practice of the experiential skilled nurses in assessing dyspnea by being able to give dyspnea a numeric value reducing the variability between the care providers. 97.4% nurses strongly agreed that the RDOS tool was easy to use, 89.7% of the nurses felt that the RDOS was time efficient and the tool would improve end of life dyspnea management/treatment, consistency, and documentation. Surprisingly, 87.2% of nurses felt that the RDOS could improve their personal dyspnea assessment skill.

Treatment

Addressing the need for an assessment tool for respiratory distress in the non-verbal dying patient comes with the recognition of having to address the treatment options of this symptom as well. Star and Boland (2018) address the updates in pharmacological management of symptoms in their updates in palliative care. Opioids together with benzodiazepines are frequently used to treat respiratory distress at the end of life. Low dosages of opioids equivalent to ≤ 30 mg of oral morphine equivalent/day to palliate breathlessness have not shown an increase mortality when used in advanced COPD patients.

The mechanisms of action of opioids on breathlessness are attributed to their μ receptor activity, their central processing modulation, and their binding capability to the opioid receptors within the bronchioles and alveolar walls as well as altering the brainstem response to hypoxia and hypercapnia (Star & Boland, 2018).

They further explain that opioids may also alter conditional anticipatory brain response to dyspnea as seen in recent neuroimaging research. When the patient is already taking opioids, suffers from refractory respiratory distress and

anxiety, then a trial of benzodiazepines is suggested. The complexity of treating respiratory distress is compounded by knowledge deficits of the clinicians: the fear that opioids may cause respiratory distress, knowledge deficit about the role opioids play in controlling respiratory distress, the unfounded belief that opioids are the cause of the premature death of the patient, and similar personal attitudes (Freeman, 2013)(Star & Boland, 2018). These cause unnecessary suffering for the patient and are the overall barrier to symptom management at the end of life (Freeman, 2013).

Summary

Dying patients are non-verbal and unable to express distress. Respiratory distress, a frequent symptom at the end of life, can be ameliorated with pharmacological interventions and decrease suffering for the patient as well for the family and the clinician. Nurses feel uncomfortable medicating a patient when they believe that their assessment is flawed, or the intervention provided might cause the premature death of the patient in their perception. An assessment tool provides the objectification of a symptom removing the perceived doubt of the nurse guiding the care of the dying patient. The RDOS, a validated and reliable assessment tool for respiratory distress in the non-verbal dying patient, was the implemented assessment tool.

Gaps exist in the literature about the implementation of the RDOS in the clinical setting as a permanent tool for assessment of dyspnea for the non-verbal terminal patient. Most of the literature review suggested the need for further studies about the permanent implementation of the RDOS in the clinical setting. This project attempt is to start filling this literature gap and to encourage other researchers to further study the permanent use of the RDOS as an assessment tool for dying patients with respiratory distress in the acute care setting.

CHAPTER 3: METHODOLOGY

The aim of this quality improvement project was to implement an assessment tool to assess respiratory distress in dying patient to be able to address this symptom by providing pharmacological interventions to ameliorate suffering. The hospital did not have an assessment tools for respiratory distress for dying patients and with it the appropriate pharmacological interventions, making it difficult to keep the distressed dying patient comfortable.

Setting

The project took place at NorthBay Medical Center, a community hospital with two campuses, with a total of 185 beds. The Healthcare system has two ICU, one with twenty-four beds located on the Fairfield Campus and one with five beds located on the VacaValley Campus. Fairfield incorporates three medical-surgical units with 90 beds and VacaValley two with 40 beds.

The nurses working at the hospital lack the knowledge to assess symptoms of respiratory distress in the dying patient. Furthermore, they have no assessment tools available to objectively assess respiratory distress as a symptom in the dying patient and easing the patient's distress. Not having an objective assessment increases the nurses' anxiety of mismanaging the patient, exacerbated by the fear of causing the premature death of the patient should they implement the ordered pharmacological intervention. As a result, the patient continues to suffer respiratory distress, which is a manageable symptom.

This quality improvement project was designed to implement the RDOS as the assessment tool, explained in detail in the next paragraph as well as how the tool was taught to the nurses prior to its implementation. The RDOS was developed to assess non-verbal dying patients experiencing respiratory distress. By observing

the patient, the nurse can score the degree of dyspnea, and if warranted, the nurse then can implement the pharmacological intervention ordered by the provider.

RDOS (Appendix A)

The RDOS was developed by Campbell et al., in 2010 to measure respiratory distress in the non-verbal dying patient. By observing the below-mentioned symptoms of the patient, the nurse can score the degree of respiratory distress and with it receive information about a needed/not needed pharmacological intervention. A score ≥ 3 indicates the necessity of intervention in the form of additional medication (Campbell & Templin, 2015).

RDOS measures the following categories (points associated with each observation parenthesis):

Respiratory Rate

- ≤ 18 (0)
- 19-30 (1)
- ≥ 30 (2)

Heart Rate

- < 90 (0)
- 90 – 100 (1)
- ≥ 100 (2)

Restlessness

- None (0)
- Occasional (1)
- Frequent (2)

Paradoxical breathing

- None (0)

- Present (2)

Use of Accessory Muscles

- None (0)
- Slight (1)
- Pronounced (2)

Grunting

- None (0)
- Present (1)

Nasal Flaring

- None (0)
- Present (1)

Look of fear

- None (0)
- Tense face, furrowed brow, mouth open, teeth together (2)

Total Points possible = 16

For this project treatment options were provided to the providers to guide them, utilizing morphine as a baseline, but any other opioid could be used in equianalgesic dosage should the patient have a morphine intolerance or allergy.

For the opioid naïve patient, the following palliative suggestions were made

1st line treatment / Intervention Option - Opioids		
Distress	Total RDOS	Morphine IV every 1 hour as needed. May repeat once in 15 minutes if symptom not controlled. Should symptom be present after second dose please contact palliative care provider for further intervention
Mild	2	1mg
Moderate	3	2 mg

Severe	≥ 4	4 mg
	≥ 6	Call palliative care provider for further intervention
2nd line of treatment – benzodiazepines (if opioids not effective)		
RDOS	≥ 2	Lorazepam 0.5mg IV every 4 hours as needed

Additionally, nurses were encouraged to contact the palliative care provider if the appropriate interventions and treatment options were not on the patient's electronic medical record MAR. This would give then the palliative care team the opportunity to talk with the provider caring for this particular patient and ask if they could assist with symptom management of their patient, as well as implementing orders to treat respiratory distress.

Education of RDOS tool

Education of the RDOS tool was presented during huddle the first two weeks of the implementation of the tool with lead nurses encouraging the nurses to use the tool once they were assigned a comfort care patient. The palliative care team was always available to answer questions individually should the nurse need further explanation.

Initially the assessment tool was printed on paper with instructions on the front side and the assessment on the back side. The nurses were instructed to leave the tool in the paper chart like for the tool then to be scanned into the electronic medical record once the patient was discharged. The palliative care provider caring for that particular patient reminded the nurse to implement the tool. Nurses were encouraged to assess their patient at least every 4 hours. Education was done on a one to one basis with nurses working with comfort care patients that were actively dying to implement the tool appropriately and the rationale for the

pharmacological interventions. Nurses were encouraged to call this author if they had questions or felt uncomfortable with their assessment and the pharmacological implementation.

Project Design

The project studied two populations, the first population were nurses that worked either in the ICU or medical-surgical floor taking care of dying patients and the second population are the patients who were on comfort care and actively dying under the care of the palliative care providers. This quality improvement project was executed in four specific steps:

- 1st step – pre-tool implementation survey of nurses and patient chart review
- 2nd step – education of RDOS to nurses and providers
- 3rd step – implementation of the tool
- 4th step – post-tool implementation survey of nurses and chart audit of patients

First Step

The first step consisted of a pre-tool implementation survey of the nurses and a chart review of comfort care patients on the palliative care team. This first step gathered information about the knowledge and comfort level of the nurses in caring and medicating dying patients. The chart review gathered data about the current practice of the provider and the nurse caring for the comfort care patient and how respiratory distress is addressed prior to the RDOS implementation.

Second Step

The second step consisted of educating the nurses on every floor and on every shift about the RDOS as an assessment tool for respiratory distress in the

dying patient. Simultaneously during the education the first and second line of pharmacological intervention to treat respiratory distress in the dying patient was addressed. The education took place during the five-minute huddle during every shift. The lead nurse was asked to continue with the education and be a support to the nurses that had further questions. The palliative care providers were available as well to answer questions. The providers that could place a patient on comfort care while the palliative care team was not working were also included in the education about the assessment tool and the pharmacological intervention which would depend on them to order.

Third Step

The third step was the implementation of the tool which took place after the education. The tool was not placed in the electronic medical record due to time constraints of the clinical information department and was therefore printed on a lavender paper to be easily identified in the chart. The tool was then placed strategically in each department. The RDOS assessment and the instructions were printed on one paper front and back, so that the nurse could refresh their knowledge every time they had to utilize the tool. The tool was placed in the paper chart. The nurses use the paper chart to keep assessment tools that are not in the electronic medical record. After the discharge of the patient the paper chart is broken down, scanned into the electronic medical record incorporating the assessment tool as a permanent part of the medical record of the patient.

Fourth Step

The fourth step consisted of post-tool implementation survey of the nurses and a chart review of comfort care patients on the palliative care team. This first step gathered information about the knowledge and comfort level of the nurses in

caring and medicating dying patients after the implementation of the RDOS. The chart review gathered data about the new practices of the providers and the nurses caring for the comfort care patient and how respiratory distress was now being addressed after the implementation of the RDOS.

Subjects

This project studied to different types of subjects or populations and to better understand how each group was studied and to follow the development of the project they have been clustered in two groups as following:

Nurses

The first set of subjects were the nurses working in the ICU and the medical-surgical units. The nurses on these specific floors were the ones that care of dying patients while they were hospitalized. A participation invitation to all nurses at the medical-surgical and ICU floors went go out via email before the implementation of the tool asking them to take the time to answer a paper survey in the breakroom and then submit the survey to the lead or place in a designated manila envelope. The paper survey made it clear that participation was voluntary. Both pre/post survey tools were anonymous. The only identifier was the color of the paper which was slotted to differentiate the specific units. Nurses were asked to give an identifier that would be used for the pre and post survey so that the research could match surveys and analyze changes in behaviors and perceptions after the implementation of the RDOS. No obvious identifying data was be collected.

Tool

The tool utilized to determine the knowledge and attitude of the nurses toward respiratory distress as a symptom in end of life and in general about their

comfort level in caring and medicating end of life patients was the pre- and post-implementation survey. Nurses were not identified in the pre/post survey, as their participation was anonymous. No personal identifiable data is collected for this project. To be able to match pre and post tool implementation survey answers for assistance with coding pre/post surveys for statistical analysis, the nurses were asked to code their surveys with their mother's birth month/day and first two letters of her first name. For example: if their mother's first name is Mary and she was born on July 22, the identifier would be 0722MA.

Survey (Appendix B & C)

The survey was created by this author and was not validated. It was designed to gather some demographic information:

- Years in nursing
- Level of education
- Unit worked

It further asked three knowledge questions:

- What expect to see when caring for a dying patient
- Most difficult sign/symptom to assess
- First line of pharmacological intervention expected for respiratory distress

It further asked nurses to answer on a four-point Likert scale (strongly agree, agree, disagree, strongly disagree) questions about:

- Understand physiology of dying process
- Know if a non-verbal dying patient is exhibiting respiratory distress
- Feel comfortable giving opioids and benzodiazepines
- Would like to have more education about end of life patients
- Would use an assessment tool for respiratory distress if available

- Believe that suffering is part of the dying process

Both pre and post implementation surveys were similar, but for the second survey the demographic information was removed to reduce the burden of answering so many questions. The following questions were changed to reflect the after tool-implementation:

- Better understand respiratory distress in the dying patient
- Comfort level giving opioids and benzodiazepines has increased as the first line of intervention
- Comfort level of caring for the dying patient would increase with further education
- Able to assess respiratory distress better with the RDOS tool
- Able to give pharmacological intervention if assessment with the RDOS shows that patient is in respiratory distress
- Medication regiment is clearly stated after following assessment of the RDOS
- The pharmacological intervention is easy to follow
- Suffering is part of the dying process

The nurses' survey had a total of eleven items. Three of these items were just knowledge questions about the three most often seen symptoms in dying patients, the most appropriate intervention for respiratory distress and what symptom is most difficult to assess. Then it had two questions about demographics, years in nursing and highest level of education, and the remaining six questions were a mix of knowledge and attitude questions scored through a four-point Likert scale, creating ranked or nominal data.

The first three questions of the survey did not provide any significant information so the six knowledge and attitude questions were analyzed using

SPSS for nonparametric data with a confidence interval of 95% was utilized – Kruskal-Wallis ANOVA was used to analyze differences in years of experience in nursing, education, and unit affiliation with the six knowledge and attitude questions. The unit affiliation was obtained by the different colored surveys given to each unit. Blue was designated to ICU, amber was designated to the stepdown unit, and pink was designated to the medical surgical floor. During the analysis of each individual unit there was no difference between the medical surgical floor and the stepdown unit in so the decision to clump them together and compare them with the ICU was made for that reason.

The project set out to measure if there would be a difference in knowledge about and attitude toward the distribution of adequately medicating the dying patients with respiratory distress before and after appropriate training in the utilization of the assessment tool. It also set out to see if the the objectification of an assessment tool increased the comfort level of the nurse to implement pharmacological intervention with the non-verbal dying patient. Although initially during the pre-implementation of the tool, 101 of 420 nurses answered the survey. Post-implementation of the instrument the return of the survey was significantly low, n=21 and out of those only n=3 did include the survey identifier so a comparison of pre and post-implementation of the tool has not been executed and the post-tool implementation survey was disqualified from further analysis.

The pre-implementation survey data still gave an interesting point of view of the nurses prior to the implementation of the tool. From the answers gathered from the pre-implementation survey, the three demographic questions were compared with the six-remaining knowledge/attitude questions.

- 3 demographic questions:
 - Unit worked

- Years in Nursing
- Education
- 6 attitude/knowledge questions
 - Understand the dying physiology
 - Understand respiratory distress
 - Comfortable giving opioids
 - Would use the RDOS if available
 - Would like additional education
 - Suffering is part of dying

Subjects

The second set of subjects or population studied were the patients on comfort care actively dying in the acute care setting. To be included they had to be followed by the palliative care team.

Patients

This project did only followed patients seen by the palliative team that were actively dying during the designated collection period of July 2019 to December 2019. Usually ten percent of the patients seen by the palliative care team die while on service.

Chart Review

Data was gathered through a pre- and post- chart review of patients that met the criteria of being seen by the palliative care team of the hospital, on comfort measures, and actively dying. At the time the chart reviews were conducted the patients had died. The data gathered during the chart review were determined by three aspects. One aspect was taking into consideration the assessment part of the metrics of the RDOS that the nurses documented in the electronic medical record:

respiration rate and heart rate. It further located medication ordered by the provider specifically to address respiratory distress. The medication in the electronic medical record are easily identified. Nurses document on the electronic MAR when medications are given and what the outcome is after the medication was given. This was also included in the chart review as an important factor the intervention of the nurse if the patient had symptoms that needed to be addressed.

And lastly the chart review documented if that pharmacological intervention was given by the nurse did the intervention control the symptom. The data was gathered from patients seen by the palliative care team who died during the time of the project. The palliative care database did not have patient identifiers and the data collected for the palliative care program is only available at the hospital local server. The review for this project was to simply verify improvement in statistics pre and post implementation of the assessment tool.

The pre-tool implementation chart review included all thirty-eight patients who met the above described criteria from mid-June to mid-September. The post-tool implementation chart review included all forty-one patients who met the above described criteria from October through December.

The data that was collected for the chart review was the following:

- Medication to treat respiratory distress prescribed by the provider
(ranked as follows)
 - 1 - Medication not ordered
 - 2 - Medication ordered but insufficient to address respiratory distress
 - 3 - Medication correctly ordered – right amount and coverage to treat respiratory distress
- Medication is given by RN
(ranked as follows)

1 - Medication not given

2 - Medication is given but not enough according to the assessment of symptom

3 - Medication is given correctly according to symptom

- Symptoms present

1 - No

2 - Yes

The data collected for the chart review was rank data, therefore non-parametric test procedures of SPSS with a confidence interval of 95% were utilized. Due to the nature of the collected data the pre- and post-tool implementation chart review values are completely independent of each other; therefore, the Mann-Whitney U test for independent samples was the appropriate statistics.

The first data that was analyzed was medication ordered by provider as a stand-alone item to see if the implementation tool had an impact on how the providers ordered medication, did they order it specifically for respiratory distress and did the provider orders reflected the need for possible escalation of symptoms in the patient. For this analysis, the other two items, medication given and symptom present or not present were not considered. The rationale for analyzing this data as a stand-alone item was that the provider is expected to order medications as needed to control symptoms as they arise and not wait until the patient is symptomatic for the nurse then to have to call to ask for medication, which might be very cumbersome and would delay treating and relieving the symptom. The orders need to be specific to the symptom that is expected to be treated when it arises.

The second item that was analyzed as a stand-alone item was medication given by the nurse. The question that arose was did medication giving by the nurse increase after the implementation of the RDOS regardless of medication ordered or symptom present or not present? Did the education and the tool influence the nurse to feel more comfortable in giving medications.

The next two items were then analyzed in combination, medication ordered by provider and medication given by nurse. Did the act of giving medication increase when the medication for the symptom was ordered by the provider?

Lastly the data analyzed was medication ordered by provider, medication given by nurse and symptom present. Nurses do not given medication if the symptom is not present so the data was analyzed for the patients that did have symptoms to see if medication was ordered by the provider and did the nurse medicate the patient to control the symptom. All data analyzed showed a statistical significance between pre-tool implementation and post-tool implementation.

Ethical Considerations

The project was approved by the Institutional Review Board (IRB) at NorthBay Healthcare, in Solano County . It was further approved by the Institutional Review Board (IRB) at California State University, Fresno. The project was accepted as presented with the request to get the educational department of the hospital involved in supporting the needed education of the tool over the years to make this project successful.

Potential Risks

There were no potential risks involved during the participation of this quality improvement project. Participation was a survey-based data collection. The

response from the paper survey was anonymous, and there was no adverse effect associated with not participating in the project.

The patients' charts audited were reviewed automatically by the palliative care team for national data collection; the project was simply analyzing changes in practice once the tool was implemented.

Summary

Respiratory distress, a frequent symptom at the end of life, can be ameliorated with pharmacological interventions and decrease suffering for the patient as well as for the family and the clinician. Nurses feel uncomfortable medicating a patient when they believe that their assessment is flawed, or the intervention provided might cause the premature death of the patient in their perception. An assessment tool provides the objectification of a symptom taking this doubt, that the nurse might have, out of the equation, especially if the results of the assessment are integrated into the pharmacological orders. The RDOS, a validated and reliable assessment tool for respiratory distress in the non-verbal dying patient, was the implemented assessment tool.

The quality improvement project started with a survey prior to the tool implementation to nurses to get a baseline of their knowledge about end of life and their comfort level in giving opioids or benzodiazepines to control symptoms. Nurses received education about the assessment tool during their huddle at every shift for the two weeks prior to the implementation of the tool. After these two weeks the nurses started to utilize the tool for every comfort care patient within the hospital. Lead nurses and the palliative care providers were available to answer questions or further explain should the nurses have questions while using the tool. A post tool implementation survey to the nurses was rolled out after the two months to see if the RDOS had an impact on knowledge and comfort level in

using opioids and benzodiazepines as medications of choice to control this symptom.

Chart reviews were executed prior to the tool implementation and after the tool implementation to see if the RDOS had an impact of how this symptom was cared for at the end of life. During the chart review data was gathered about the symptoms related to respiratory distress (elevated respiratory rate and heart rate) as well as pharmacological intervention ordered by provider and then implemented by the nurse after the assessment.

CHAPTER 4: RESULTS

This quality improvement project implemented an assessment tool to assist nurses objectively gather information of the non-verbal dying patient in respiratory distress at the same time increasing their comfort level in delivering pharmacological interventions. The participants studied were nurses, and non-verbal actively dying comfort care patients. The data gathered had four steps:

1. Pre implementation survey of the nurses and chart review of the patients
2. Education of the RDOS assessment tool
3. Implementation of the RDOS assessment tool
4. Post implementation survey of the nurses and chart review of the patients.

The data gathered was to show the impact the RDOS assessment tool had on the nurses' knowledge and attitude toward assessing a non-verbal dying patient in respiratory distress. Then, their efficacy of implementing pharmacological intervention. The project also reviewed the ordering of the pharmacological intervention by the provider.

Survey Data

The survey was given in paper format to all nurses working in units where they could encounter dying patients. Each survey solicited from the respondent a personally non-identifiable but easily reproduceable code value to allow matching a pre-implementation survey with a post-implementation survey. While 102 nurses answered the pre-implementation survey, only 22 answered the post-implementation survey and only three of these contained a matching code, therefore only the pre-survey could be used for analysis.

Demographic Data

- Length of the professional activity (Figure 1)
- Highest educational level achieved (Figure 2)
- Unit the nurses work at (Figure 3)

Length of Professional Activity

Forty eight percent of the respondents had 10 or more years of experience as a nurse, and only less than 10 percent had less than two years of experience.

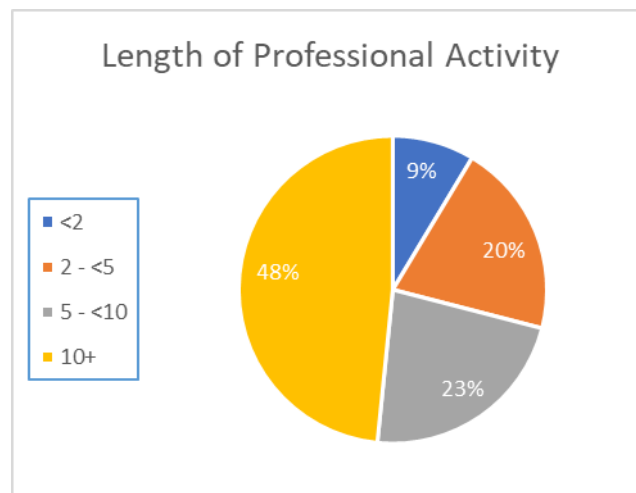


Figure 1. Length of professional activity

Highest Educational Level

The majority of the nurses' surveyed (84%) had a BSN, the minimal degree acceptable for employment at NorthBay due to its status as a Magnet Hospital. Fourteen percent hold a master's in nursing science degree and 2% hold a doctoral degree.

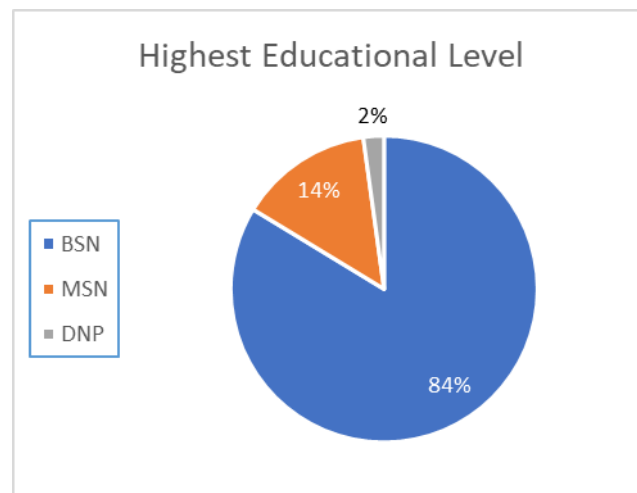


Figure 2. Highest educational level of nurses participating in the survey.

Unit in which the nurses worked

Approximately one third of the nurses surveyed worked in the ICU, all the others worked on the medical-surgical floors.

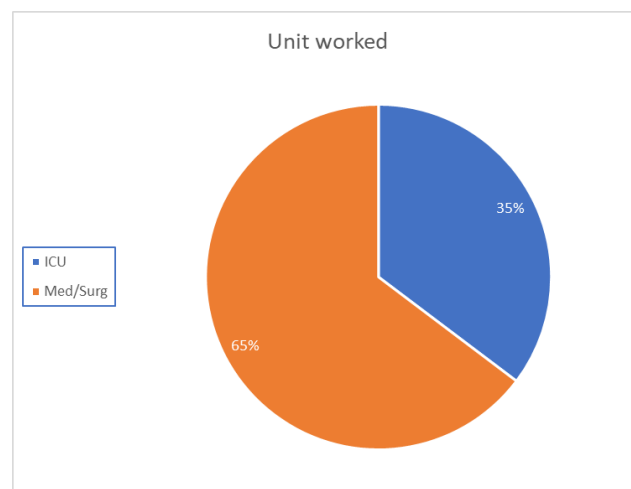


Figure 3. Unit in which the nurses participating in the survey worked

Knowledge Questions

The survey was composed of three knowledge questions intended to gain insight into the knowledge base of the nurses about dying:

- Name the three symptoms you are most likely to encounter in a dying patient
- Ten different signs and symptoms were presented and the nurses selected overwhelmingly:
 - Decreased urine output
 - Increased respiratory distress
 - Increased agitation and restlessness

- Which symptom do you consider to be most difficult to assess in a dying patient:

60 percent of the nurses named pain

19 percent named respiratory distress – a clear indication for the lack of awareness of the severity and discomfort respiratory distress causes in dying patients

- Which is the most effective pharmacological intervention used against respiratory distress in dying patients

63 percent named opioids as an effective intervention

30 percent selected oxygen, which in dying patient is actually is not recommended

None of the knowledge questions showed significant differences for the three independent variables Experience, Education, and Work Unit.

Attitude/Belief Questions

This group of questions intended to determine how the nurses view:

- Their own understanding of dying

- Attitude toward additional education
- Their beliefs about suffering.

(1) I understand the physiological changes connected with the dying process.

90% of the answers were Strongly Agree or Agree (Figure 4). A number somewhat contradicting anecdotal evidence from several conversations with nurses before the survey. There was no statistically significant difference between the answers for the characteristic values in Education, in Experience, and in Unit as determined by the Kruskal-Wallis ANOVA.

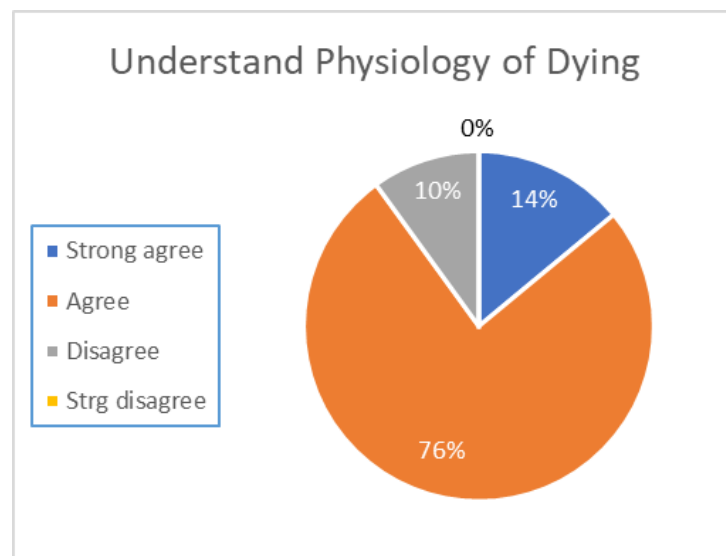


Figure 4. Understanding the physiological changes connected with the dying process

(2) I know if a dying patient is in respiratory distress even if they are unable to verbalize their discomfort.

85% of the nurses feel that they discern that a non-verbal dying patient is in respiratory distress (Figure 5). The answers are again contradicted by anecdotal evidence gathered by the Palliative Care team, where nurses were unable to differentiate if a non-verbal dying patient was in respiratory distress or not. There was no statistically significant difference between the answers for the characteristic values in Education, in Experience, and in Unit as determined by the Kruskal-Wallis ANOVA.

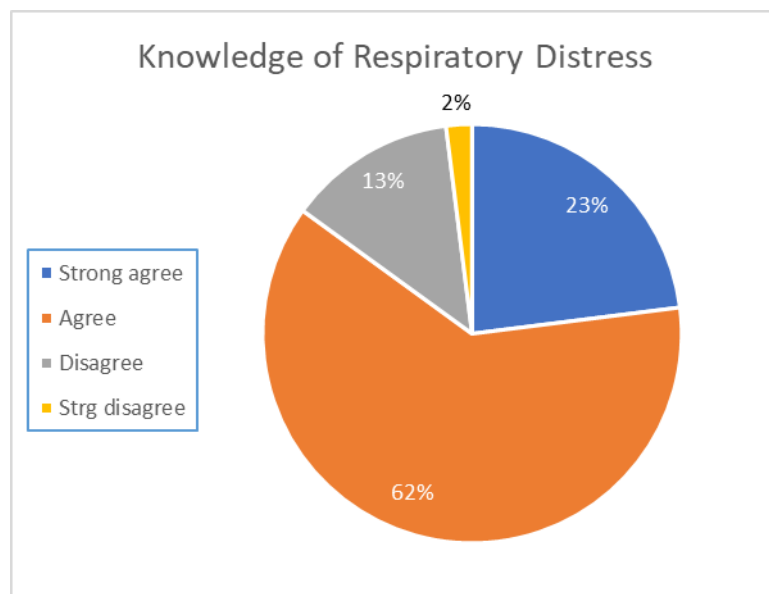


Figure 5. I know if patient is in respiratory distress

(3) I feel comfortable giving opioids or benzodiazepines as the first line pharmacological intervention to a dying patient in respiratory distress.

85% of the respondents answered that they Strongly Agree or Agree with the statement (Figure 6). The chart review (see Chart Review on page 43) indicated that there seemed to be a gap between the self-perception and the actions, as the implementation of the RDOS significantly changed the medication

given to patients. This question showed statistically significant differences between the characteristic values for the Length of Experience ($p = 0.000$) as determined by the Kruskal-Wallis ANOVA, but not for Education or Work Unit, which seems reasonably explained by having more exposure to using opioids and similar medications over a longer period of time also gives an understanding of the helpfulness of a pharmacological regimen including them, while education and work unit may contribute little to an area of nursing which is practically not taught through the nursing curriculum (Lippe & Becker, 2015).

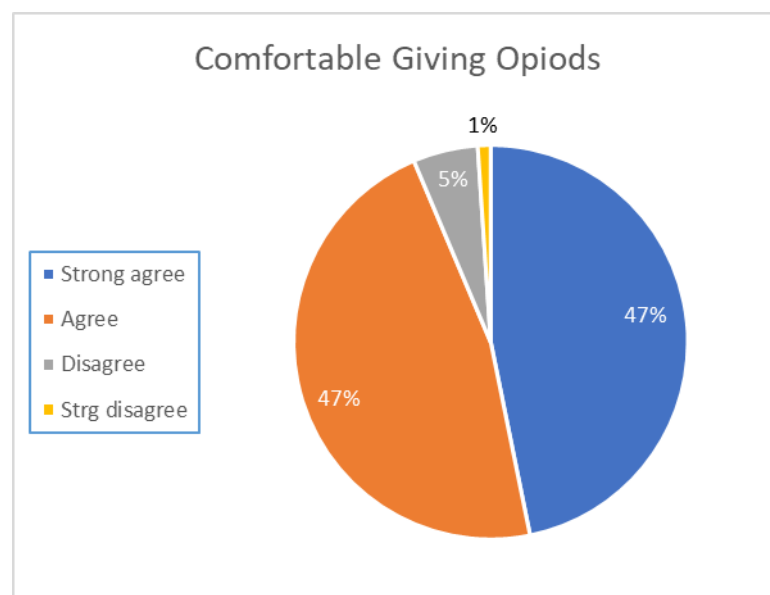


Figure 6. Feeling comfortable giving opioids and benzodiazepines to dying patients in respiratory distress

(4) I would prefer an assessment tool for respiratory distress for non-verbal dying patients.

94% of the nurses answered this questions that they would prefer an assessment tool to objectify symptoms in the non-verbal dying patient in respiratory distress (Figure 7). This supports their verbalization about the fear that their subjective assessments might not be accurate even if 97% of the nurses stated in question eight that they knew when a non-verbal patient was in respiratory distress.

The conjecture seems reasonable that the majority of the nurses felt the additional help of an assessment tool that objectifies their assessment comforting. This question showed statistically significant differences between the characteristic values for the Length of Experience ($p = 0.000$), but not for Education or Work Unit, which seems reasonably explained by more experienced nurses feeling a lesser need for additional assessment help.

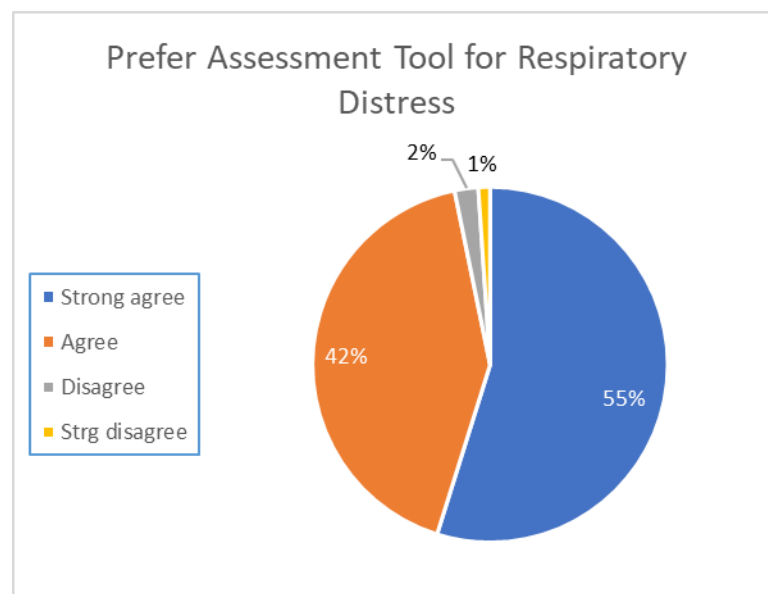


Figure 7. Prefer an assessment tool for respiratory distress

(5) My comfort level caring for the dying patient would increase with additional education about the dying process

The answers to this question (Figure 8) fall in line with the answers to the question (I would prefer an assessment tool for respiratory distress in non-verbal dying patients), where nearly all of the respondents expressed their preference for an assessment tool for respiratory distress in dying non-verbal patients; therefore it makes sense that 97% of the respondents say that they would benefit from additional information about the dying process. At the same time, considering the answers to question (I understand the physiological changes with the dying process), where 90% of the respondents declared that they understand the physiology of the dying process, this seems to be contradictory; as the result of question (my comfort level caring for the dying patient would increase with additional education about the dying process) corresponds much closer to the anecdotal evidence obtained by the Palliative Care team, the answers to the question (I understand the physiological changes connected with the dying process)- could be interpreted in the form that respondents answered more according to what they felt as an expectation than their actual thinking. This question showed statistically significant differences between the characteristic values for the Length of Experience ($p = 0.000$), but not for Education or Work Unit, which seems reasonably explained by more experienced nurses understanding more their own limits and limitations.

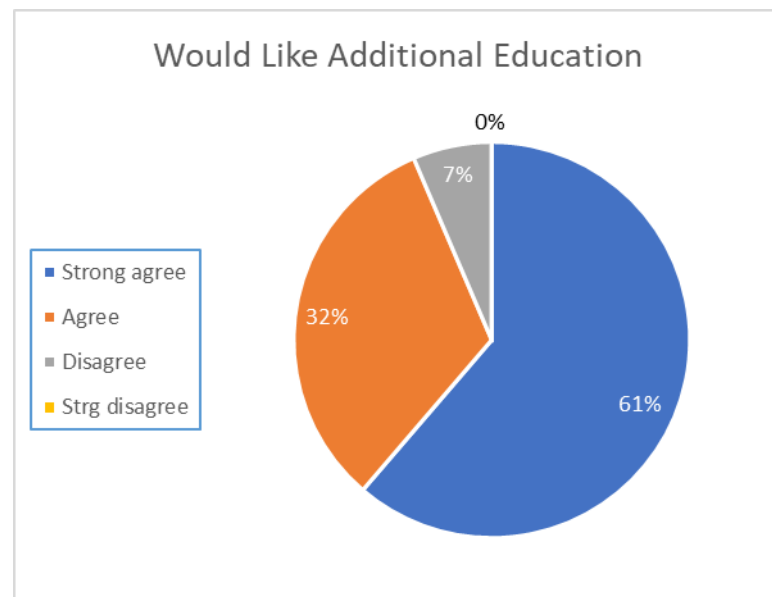


Figure 8. Comfort level caring for the dying patient would increase with additional education about the dying process

(6) I believe that suffering is part of the dying process

This question aimed to gain some insight into the mind frame of nurses. 89 percent (Figure 9) of the nurses answered this question with strongly disagree or disagree. 11 percent of the nurses answered that they strongly agreed or agreed with that statement, presenting a troubling minority in which the belief system could influence the care offered to dying patients. This question showed statistically significant differences between the characteristic values for the Length of Experience ($p = 0.000$), but not for Education or Work Unit. There is no reasonable explanation for this finding, and looking at the raw data connected with this question there seems to be a case of a beta error where the calculation points to a statistically significant difference between the characteristic values of the variable when in reality there is none. Further investigation would be necessary to come to a valid conclusion.

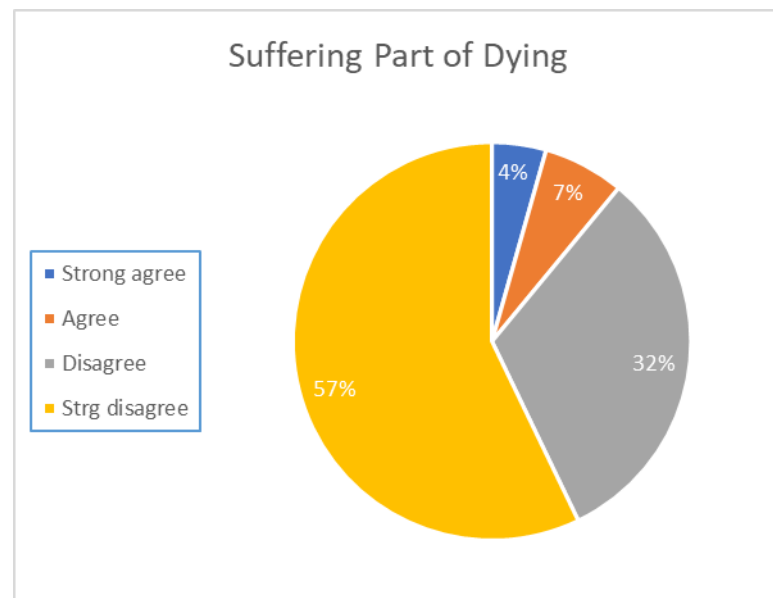


Figure 9. I believe that suffering is part of the dying process.

Chart Review Data

The data gathered for the survey was obtained from chart reviews from comfort care patients who died under the Palliative Care team at NorthBay. The timeframe for the pre-tool implementation review was from July through the month of August of 2019. The post-tool implementation review was executed from mid-September to mid December 2019.

Considering that the survey, due to the lack of answers in the post tool implementation survey, turned into just an additional, but not vital set of information, the chart audit became the only and therefore the most important tool to determine if the implementation of the RDOS and the training sessions connected with it had any effect on the ordering and delivery of medication and with it on the care of the non-verbal dying patients in respiratory distress.

To obtain valid statistical information, the three variables collected were:

- Symptom present
- Medication ordered
- Medication given

Symptom

By design the symptom present is a categorical variable with the possible characteristic values of yes, or no.

The first test determined whether the distribution of the symptom present is not different between the pre- and post-tool implementation patient population. The Mann-Whitney U-Test for independent samples indicated that there was no statistically significant difference between the pre- and post-implementation distribution of the symptom.

Medication ordered by provider

Medication ordered by provider (Figure 10) is an ordinal variable with the possible characteristic values of:

- No medication ordered – 1
- Insufficient medication ordered – 2
- Medication correctly ordered – 3

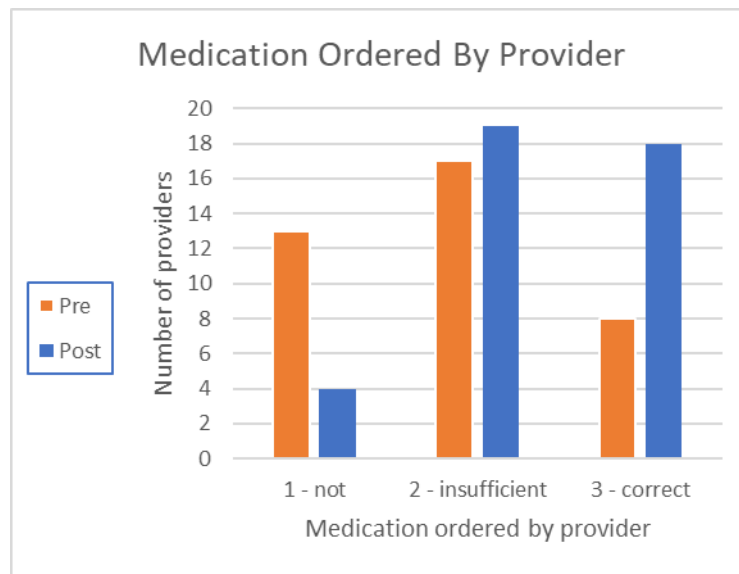


Figure 10. Distribution of Medication ordered by Provider

The Mann-Whitney U Test for independent samples showed a statistically significant difference between the pre- and the post-implementation values ($p = 0.005$, $U = 511.500$, $Z = 2.830$). This indicates that the providers – although officially not included in the project – became much more aware of the need to write the necessary orders for this patient group.

Medication given by nurse

Medication given by nurse is an ordinal variable with the possible characteristic values of:

- No medication given – 1
- Insufficient medication given – 2
- Medication given correctly - 3

The order by the provider is a PRN (as needed) order, so it is within the discretion of the nurse to give any amount of the medication within the parameters

of the medication order. This medication order should exist for all patients. The distribution of the characteristic values of the variable Medication given by nurse is shown in Figure 11.

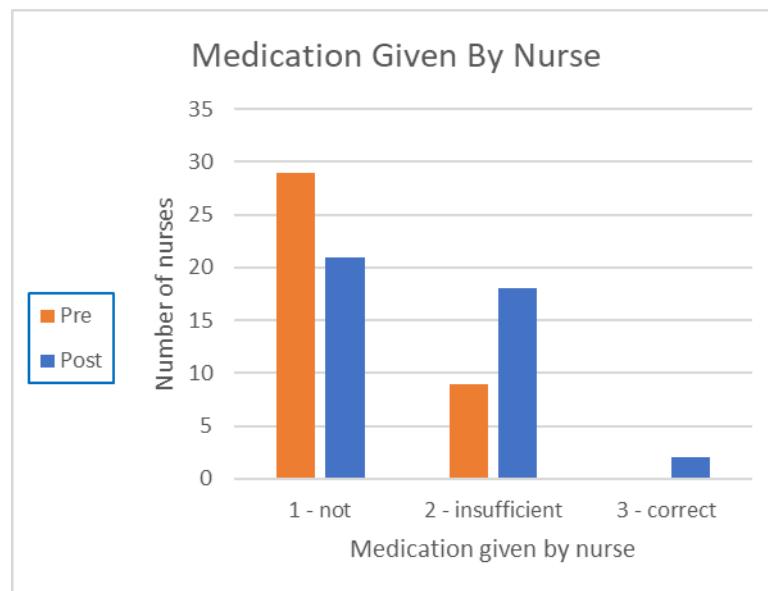


Figure 11. Distribution of Medication given by nurse

The Mann-Whitney U Test for independent samples showed a statistically significant difference between the pre- and the post-implementation values ($p = 0.017$, $U = 983.500$, $Z = 2.387$). The shift was mainly from no medication to insufficient medication, indicating that the nurses still didn't feel completely comfortable giving opioids, despite the proclaimed comfort in the survey (see the survey question: I feel comfortable giving opioids or benzodiazepines as the first line pharmacological intervention to a dying patient in respiratory distress on page above). Nevertheless, it could be argued that significant progress has been made,

and additional studies could show whether this gain can be sustained or even expanded with additional training and education.

Composite Data Values

To further investigate into the relation between the variables Medication ordered and Medication given, and restrict the data to the cases where the symptom was present, a composite value was created in the form v_1/v_2 where v_1 is the characteristic value of Medication ordered by provider, and v_2 is the characteristic value of Medication given by nurse. This combining gives now possible values from 1/1 (no medication ordered – no medication given) to 3/3 (medication correctly ordered – medication correctly given) resulting in the distribution shown in Figure 12:

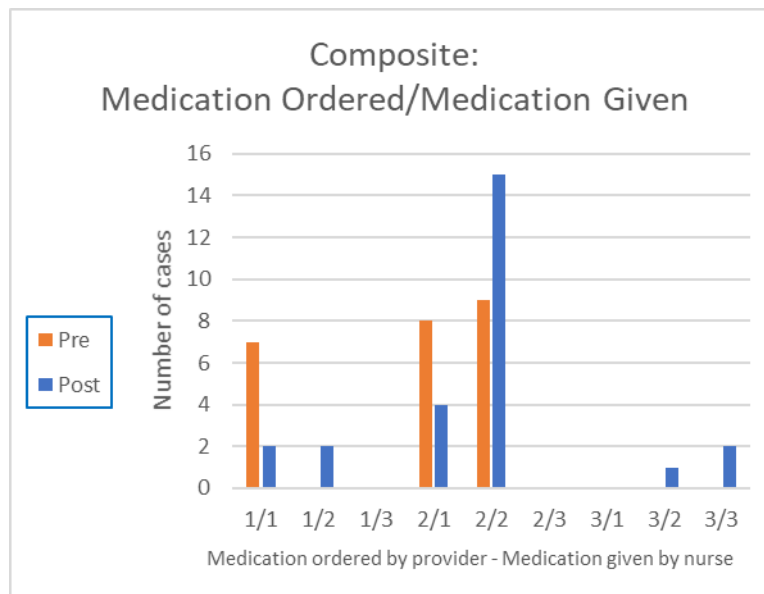


Figure 3. Composite Distribution of Medication ordered/Medication given.

The Mann-Whitney U Test for independent samples showed a statistically significant difference between the pre- and the post-implementation values ($p = 0.031$, $U = 432.500$, $Z = 2.162$). The graph indicates that the shift was gradual, from none to insufficient, and subsequent studies would have to determine the longevity of this shift, or if additional education can help to get to the next level from insufficient to correct.

Summary

The data analysis provides ample evidence that the implementation of the RDOS led to a change in the medication regimen for the non-verbal dying patient in respiratory distress. This change required an adjustment in the behavior of the providers as well as the nurses – supported by the data – even if the changes were not as complete as it could have been. That these changes also happened in the attitude of the nurse caring for these patients and not only in their actual behavior could not be determined due to the lack of an adequate number of correspondents in the post-implementation survey.

CHAPTER 5: CONCLUSION

This quality improvement project aim was to assist nurses in assessing respiratory distress in the non-verbal dying patient and then to be able to implement the appropriate pharmacological intervention to ameliorate suffering. From the literature review indicated the RDOS as the appropriate and only tool available to assess objectively non-verbal dying patients in respiratory distress. The project took place in a small community hospital in Solano County. To be able to study if the tool had an impact on the nurses attitude and knowledge as well as in the implementation of the appropriate pharmacological intervention two sets of subjects were studied: the nurses and the comfort care patients in respiratory distress.

Discussion

The project required the study of two sets of subjects: a survey of the nurses caring for the non-verbal dying comfort care patient in respiratory distress and the chart review of the non-verbal dying comfort care patient pre and post tool implementation.

As the survey depended on the voluntary participation of the nurses and required a non-personal identifier to match pre and post tool implementation surveys, it happened that only three matching post-tool implementation surveys were returned precluding the planned statistical matching of the responses to the survey, eliminating to study of the possible the impacts the RDOS had on the knowledge, attitude and comfort level of the nurses. The pre-tool implementation survey provided some insight about the knowledge, attitude, and comfort level of the nurses toward symptom management and caring for the end of life patient. Of great interest was the self-perception of the nurses of understanding the

physiology of dying and respiratory distress, while simultaneously more than 90% professed their interest in using an assessment tool and additional education, showing. This could be attributed to the fact that they perceive an expectation having to know physiology of dying and respiratory distress but in reality, they know that they benefit of further education and a tool to assist them in accurate assessment.

The chart review of the non-verbal dying comfort care patient included in the project became the main possibility for pre and post tool implementation analysis. From here the information extracted showed that the RDOS has a statistically significant positive impact on medication ordered by provider and medication given by nurse. The cases of medication not ordered by provider was reduced by more than 60 percent and the number of cases of medication correctly ordered more than doubled. The impact the medication given was less dramatic and one the interpretation to this phenomenon could be that the nurses had not completely achieved the desired comfort level due to lack of knowledge and education. Therefore the composite value of medication ordered and medication given shifted from a strong preference for medication not given independent of the order to medication insufficiently given independently of the order.

Limitations

One of the limitations of this study was the questions elicited positive answer making easy for the nurses to quickly go from question to question and mark the same answer as the prior without deliberation. This was obvious when the survey was coded when on one survey all the answers where the same. Another limitation is the survey was not validated. The questions lacked precision making it at times difficult for the nurses to answer. The paper survey left out most

of the nurses that did not work during the time period that it was deployed. An additional limitation was that the RDOS was not part of the electronic medical record making its documentation and use cumbersome for the nurse and difficult to audit at the time of the chart review.

The lack of time and support to educate appropriately the nurses about such an important tool was a difficult hurdle to overcome and it is seen in the results of the chart review. The huddle is no conducive place to introduce a new tool. The huddle time limitation and the constant distractors have a negative effect on answering questions and helping nurses understand the depth of the problem and the ease of the solution.

Recommendations

For the RDOS to be effectively used at the bedside in the acute care setting it needs to be embedded in the electronic medical record. A paper tool in the busy and chaotic environment of today's acute care setting is unrealistic and frustrating for the nurses. The implementation of any new assessment tool and specifically the RDOS needs the full support of the educational department. It is recommended to review the tool on a yearly basis during skills lab. It also must be included in the orientation of all newly hired nurses and providers.

Education of providers about the tool and specifically about the medication regimen and how to order it appropriately is also paramount. Furthermore, the medication regimen needs to be implanted into the electronic medical record as a possible choice when a comfort care patient order is selected as part of the comfort care plan. Providers have limited time to remember every nuance of each symptom management dilemma.

An interesting topic stemming from the question in the survey 'I believe that suffering is part of dying' where eleven percent of the nurses stated that they

strongly agree or agree with that statement warrants further research into the background of this attitude/belief to find valid and not opinionated explanations and ramifications.

Summary

The project was the first step toward the full implementation of the RDOS in a clinical setting. This study shows the positive impact it had on providers and nurses as well as patients. It also showed that – even the tool itself is easy to utilize – the complexity of the topic requires additional training and education and most of all the support of the hospital leadership.

REFERENCES

- Baker, K. M., DeSanto-Madeya, S. & Banzett, R. B. (2017). Routine dyspnea assessment and documentation: Nurses' experience yields wide acceptance. *BioMedical Central*, 16(3), 1-11.
- Bausewein, C., Booth, S., Gysels, M. H., Kuhnback, R., Haberland, B. & Higginson, I. J. (2010). Understanding breathlessness: cross-sectional comparison of symptom burden and palliative care needs in chronic obstructive pulmonary disease and cancer. *Journal of Palliative Medicine*, 13(9), 1109-1118.
- Birkholz, L. & Haney, T. (2018). Using a Dyspnea Assessment Tool to Improve Care at the End of Life. *Journal of Hospice & Palliative Nursing*, 20(3), 219-227.
- Campbell, M. L., Kiernan, J. M., Starndmark, J. & Yarandi, H. N. (2018). Trajectory of Dyspnea and Respiratory Distress among Patients in the Last Month of Life. *Journal of Palliative Medicine*, 21(2). 194-199.
- Campbell, M. L. & Templin, T. N. (2015). Intensity cut-points for the Respiratory Distress Observation Scale. *Palliative Medicine*, 29(5), 436-442.
- Campbell, M. L., Templin, T. N. & Walch, J. (2010). A Respiratory Distress Observation Scale for Patients Unable to Self-Report Dyspnea. *Journal of Palliative Medicine*, 13(3). 285-289.
- Freeman, B. (2013). CARES: An Acronym Organized Tool for the Care of the Dying. *Journal of Hospice and Palliative Nursing*, 15(3), 147-153.

- Gardiner, C., Gott, M., Ingleton, C., Hughes, P., Winslow, M. & Bennett, M. I. (2012). Attitudes of Health Care Professionals to Opioid Prescribing in End-of-Life Care: A Qualitative Focus Group Study. *Journal of Pain and Symptom Management*, 44(2), 206-214.
- Jeffers, S. (2014). Nurse faculty perceptions of end-of-life education in the clinical setting: A phenomenological perspective. *Nurse Education in Practice*, 14, 455-460.
- Lippe, M. P & Becker, H. (2015). Improving attitudes and Perceived Competence in Caring for Dying Patients: An End-of-Life Simulation. *Nursing Education Perspective*, 36(6), 372-378.
- Hall, M. J., Levant, S. & DeFrances, C. J. (March, 2013). Trends in Inpatient Hospital Deaths: National Hospital Discharge Survey 2000 – 2010. *National Center for Health Statistics*: (Data Brief No. 118). Retrieved from: <https://www.cdc.gov/nchs/data/databriefs/db118.htm>
- McDermott, K. W., Elixhauser, A & Sun, R. (June, 2017). Trends in Hospital Inpatient Stay in the United States 2005 – 2014. *The Healthcare Cost and Utilization Project – HCUP*. (Statistical Brief # 225). Retrieved from: <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb225-Inpatient-US-Stays-Trends.jsp>

- Parshall, M. B., Schwartzstein, R. M., Adams, L., Banzett, R. B., Manning, H. L., Bourbeau, J., Calverley, P. M., Gift, A. G., Harver, A., Lareau, S. C., Mahler, D. A., Meek, P. M. & O'Donnell, D. E. (2012). An Official American Society Statement: Update on the Mechanisms, Assessment, and Management of Dyspnea. *American Journal of Respiratory Critical Care Medicine*, 185(4), 435-452.
- Rowbottom, L., Chan, S., Zhang, L., McDonald, R., Barnes, E., Tsao, M., Zaki, P. & Chow, E. (2017). Impact of dyspnea on advanced cancer patients referred to a palliative radiotherapy clinic. *Support Care Cancer*, 25, 2691-2696.
- Star A. & Boland, J. W. (2018). Updates in Palliative care – recent advancements in the pharmacological management of symptoms. *Clinical Medicine*, 18(1), 11-16.
- Strang, S., Ekberg-Jansson, A. & Henoch, I. (2014). Experience of anxiety among patients with severe COPD: A qualitative, in-depth interview study. *Palliative and Supportive Care*, 12(6), 465-472.
- Virdun, C., Luckett, T., Davidson, P. M. & Phillips, J. (2015). Dying in the hospital setting: A systemic review of quantitative studies identifying the elements of end-of-life care that patients and their families rank as being most important. *Palliative Medicine*, 29(9), 774- 796.

Wysham, N. G., Miriovsky, B. J., Currow, D. C., Herndon, J. E., Samsa, G. P., Wilcock, A. & Abernethy, A. P. (2015). Practical Dyspnea Assessment: Relationship Between the 0-10 Numerical Rating Scale and the Four-Level Categorical Verbal Descriptor Scale of Dyspnea Intensity. *Journal of Pain and Symptom Management*, 50(4), 480-487.

Zhuang, Q., Yang, G. M., Neo, SH-S. & Cheung, Y. B. (2019). Validity, Reliability and Diagnostic accuracy of the Respiratory Distress Observation Scale for assessment of dyspnea in adult palliative care patients. *Journal of Pain and Symptom Management*, 57(2), 304-310.

APPENDICES

APPENDIX A: PRE-IMPLEMENTATION SURVEY

Enter in the right box your unique tracking code consistent of your mother's first two letters of her first name and birth month/day **(e.g., if your mother's first name is Mary and she was born on July 22, the identifier would be MA0722)** Thank you

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Please answer this survey from the standpoint of what you know and not what you believe is expected from you. Thank you.

Pre-Tool Implementation Survey

1. When caring for a dying patient what do you expect to see? Mark 3 most common items
 - ☐ Decrease in urine output
 - ☐ Normal oxygen saturation
 - ☐ Good appetite
 - ☐ Agitation/Restlessness
 - ☐ Awake and engaged
 - ☐ Following commands
 - ☐ Increased respiratory rate ≥ 26
 - ☐ Increased body temperature
 - ☐ Active bowel sounds
 - ☐ Pain
2. Which of the following sign/symptom is most difficult to assess?
 - ☐ Oxygen saturation
 - ☐ Pain
 - ☐ Respiratory distress
 - ☐ Delirium
3. What first line of pharmacological intervention would you expect for respiratory distress?
 - ☐ Oxygen

- Opioids – specifically morphine
 - Benzodiazepines
 - Antipsychotics
 - Anticonvulsants
4. I understand the physiological process of a dying patient
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
5. I do know when a dying patient is in respiratory distress especially when they are unable to verbalize their discomfort
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
6. I do feel comfortable giving opioids or benzodiazepines as the first line pharmacological intervention to a dying patient that you assessed as being tachypneic and in discomfort
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
7. I would use an assessment tool for respiratory distress for the non-verbal dying patient if available.
- Strongly Agree
 - Agree

- Disagree
 - Strongly Disagree
8. My comfort level caring for the dying patient would increase with additional education about the dying process.
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
9. How many years have you been a nurse?
- <2
 - $2 - <5$
 - $5 - <10$
 - ≥ 10
10. What is the highest educational level achieved?
- BSN
 - MSN
 - DNP
11. I believe that suffering is part of the dying process.
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree

APPENDIX B: POST-IMPLEMENTATION SURVEY

Enter in the right box your unique tracking code consistent of your mother's first two letters of her first name and birth month/day (e.g., if your mother's first name is Mary and she was born on July 22, the identifier would be MA0722) Thank you

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Please answer this survey from the standpoint of what you know and not what you believe is expected from you. Thank you.

Post Tool Implementation Survey

1. I better understand respiratory distress in the dying patient
 - ☐ Strongly Agree
 - ☐ Agree
 - ☐ Disagree
 - ☐ Strongly Disagree
2. My comfort level giving opioids or benzodiazepines as the first line of pharmacological intervention to a dying patient increased
 - ☐ Strongly Agree
 - ☐ Agree
 - ☐ Disagree
 - ☐ Strongly Disagree
3. My comfort level caring for the dying patient would increase with additional education about the dying process.
 - ☐ Strongly Agree
 - ☐ Agree
 - ☐ Disagree
 - ☐ Strongly Disagree
4. I am able to assess the respiratory distress of the dying patient by utilizing the RDOS assessment tool.

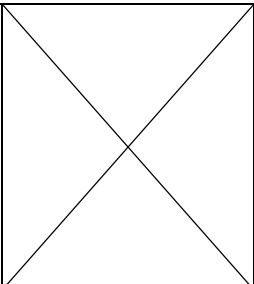
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
5. My comfort level has increased in keeping my dying patient comfortable and control their respiratory distress with the RDOS assessment tool.
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
6. I feel comfortable giving the prescribed pharmacological intervention if the RDOS states that my patient is in respiratory distress.
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
7. The medication regimen is clearly stated after following the assessment results with the RDOS
- Strongly Agree
 - Agree
 - Disagree
 - Strongly Disagree
8. The pharmacological regimen for the RDOS is easy to follow?
- Strongly Agree
 - Agree
 - Disagree

- Strongly Disagree
- 9. I believe that suffering is part of the dying process
- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

APPENDIX C: RDOS INSTRUCTIONS NORTHBAY

Respiratory Distress Observation Scale

Variable	0 points	1 point	2 points
Heart rate per minute	<90 beats	90-109 beats	≥110 beats
Respiratory rate per minute	≤18 breaths	19-30 breaths	>30 breaths
Restlessness: non-purposeful movement	None	Occasional, slight movement	Frequent movements
Paradoxical breathing pattern: abdomen moves in on inspiration	None		Present
Accessory muscle use: rise in clavicle during inspiration	None	Slight rise	Pronounced rise
Grunting at end-expiration: guttural sound	None		Present
Nasal flaring: involuntary movement of nares	None		Present

Look of fear	None		Eyes wide open, tense facial muscles, brow furrowed, mouth open, teeth together
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Contact Palliative Care Provider if appropriate intervention and treatment options are NOT on the Patient's electronic MAR

Treatment/Intervention Options

(any opioid is appropriate; this is just an example)

(This is NOT an order)

1 st line of treatment – Opioids		
	Total RDOS	Morphine IV q 1 hrs PRN may repeat x 1 in 15 min Call provider if medication ineffective
Mild distress	2	1mg
Moderate distress	3	2mg
Severe distress	≥ 4	4mg
	≥ 6	Call palliative care provider for further interventions

2 nd line of treatment – benzodiazepines (if opioids ineffective)		
RDOS	≥ 2	Lorazepam 0.5 mg IV every 4hrs. PRN if opioids ineffective

APPENDIX D: RDOS MODIFIED FOR NORTHBAY

RDOS flow sheet

Document & reassess patient at least every 4 hours.
15 minutes after pharmacological intervention

Date						
Time						
Resp. Rate ≤ 18 (0) 19-30 (1) ≥ 30 (2)						
Heart Rate < 90 (0) 90-109 (1) ≥ 110 (2)						
Restlessness None (0) Occasional (1) Frequent (2)						
Paradoxical Breathing None (0) Present (2)						
Accessory muscle use None (0) Slight (1) Pronounced (2)						
Grunting None (0) Present (2)						
Nasal Flaring None (0) Present (2)						
Look of fear None (0) Tense face, furrowed brow, mouth open, teeth together (2)						
Total RDOS Score						

